CHAPTER 1. FISH AND WILDLIFE RESOURCES AND THEIR HABITAT

1-1. General

1-1.1. Scope. The Department of Defense has under its control and for its use in the United States a little over 25 million acres of land and water; and area approximately the size of the State of Kentucky. Within this large area are many ecosystems of which fish and wildlife resources are component parts. This manual provides guidance to all Army, Navy and Air Force installations having fish and wildlife resources. Fish and wildlife management activities on military installations will, insofar as possible, comply with the 7 April 1978 Memorandum of Understanding (MOU) between the Department of the Interior and the Department of Defense for the Conservation and Management of Fish and Wildlife Resources on Military Installations (app F). This MOU provides for cooperative plan agreements between the installation and appropriate state and Federal authorities (app G).

1-1.2. Definitions (See Glossary).

1-1.2.1. Ecosystem. An ecosystem can be defined as an ecological community considered together with the nonliving factors of its environment as a unit. Thus, there are various types of aquatic ecosystems, terrestrial ecosystems, and combinations of the two. United States military installations encompass streams, lakes, coastal and estuarine areas, forests, agricultural lands, grasslands, and desert scrub. These areas provide habitat for numerous fish and wildlife species, including some that are threatened or endangered.

1-1.2.2. Wildlife. Wildlife can be viewed broadly to include finfish or true fish as well as shellfish, starfish, jellyfish, and other invertebrates such as insects, slugs, and earthworms which are important as food-chain organisms. In addition to birds and mammals, reptiles and amphibians are considered as wildlife.

1-1.3. Plant-Animal-Soil Relationships. All living organisms use energy to perform their life functions. Green plants are of basic importance because, through the process of photosynthesis, they capture sunlight energy and store it in a form which plant-eating animals can use. The plant-eaters or herbivores, in turn, become the source of energy for meat-eaters or carnivores. Plants are also important because they provide cover or shelter, nesting materials, and den sites and serve as roosting or resting sites. Most plants require soil in which to root and grow. They require water and certain nutrients. Their abundance and distribution, aside from man's intervention and alteration, depend upon many factors such as soil types, soil-water relationships, temperature, precipitation, exposure, light, and wind. Plant types, variety, abundance, and distribution tend to determine the distribution of animals and the kinds of living communities found in different areas. On the other hand, birds and mammals which spread seeds have a role in the distribution of some plants. Insects and other animals aid in plant pollination. The burrowing of animals results in some mixing and aeration of the soil. Certain soil bacteria, fungi, and other microorganisms have a role in nitrogen fixation and in other symbiotic relationships. Although plant-animal-soil relationships are much more complex than described here, it should be obvious that alteration of the environment by man may have far-reaching effects on any given ecosystem.

1-1.4. Indicators of Environmental Quality. To the trained ecologist, the presence or absence of certain fish and wildlife species in an area may provide an indication of environmental quality, but the type of plant and animal community present is even more indicative.In aquatic ecosystems, the presence of a preponderance of certain types of algae, tubeworms, and carp may indicate a polluted situation, whereas the presence of other algae and trout or smallmouth bass may indicate water of high quality. Similarly, an abundance of house sparrows, starlings, or pigeons around housing quarters or office buildings may indicate that construction and landscaping was done without adequate consideration for the needs of more desirable forms of wildlife which require a diversity of trees, shrubs, and other vegetation. The bird species mentioned above use ventilation holes, nooks and crannies, and ledges for nesting or roosting, and they do not require much shrubbery.

1-1.5. Nature of Fish and Wildlife Management. Wild animals, in order to survive and multiply, must have food, cover, water, and a place in which to reproduce. They are subjected not only to natural environmental factors but also to conditions imposed by man. To date, man's recognition of fish

and wildlife values has been related primarily to benefits derived from hunting and fishing. More and more, however, aesthetic, scientific, and other values are being recognized. Historically, wildlife management has concentrated to varying degrees on control of the harvest of game species, control of predators which may take some game animals, establishment of refuges which may provide protection from hunting, release or restocking of desired species, and management designed to create better habitat. Currently, the emphasis in management is on laws and enforcement to protect and regulate the taking of fish and wildlife, and management of vegetation and other features of habitat to meet the food, cover, water, and space requirements of fish and wildlife.

1-2. Why Practice Fish and Wildlife Management?

1-2.1. In Relation to Military Installations. Many installations have served as wildlife refuges for decades. They offer unique management opportunities, both in terms of land and water resources and of control over land use, user activities, and public access. On many installations, productive fish and wildlife habitat, present at the time the installation was established, has been preserved, and enhanced. Land taken out of agricultural production has been permitted to revert to wilder conditions conducive to the production and preservation of certain wildlife species. However, there are additional opportunities for enhancement of wildlife, including agricultural wildlife, in areas farmed on an outlease basis. This is true although hunting and trapping, which help control populations of certain game and fur animals, must be limited on some installations for security or safety purposes. These installations can serve as natural preserves that assist in restocking adjacent huntable lands. Fish and wildlife merit attention in natural resource management programs. What is done with land and water resources in terms of forestry, outleasing or other activities will affect fish and wildlife.

1-2.2. In Relation to the Public Good. When managing natural resources, the inherent values of the resources should be emphasized. For example, good fish and wildlife management contributes to the recreational benefits which may be derived from fishing, hunting, bird-watching, nature walks, and other outdoor activities. Fish and wildlife management can also enhance scientific values. Shrub plantings can have aesthetic as well as wildlife and erosion control value. Sound land use and natural resources management programs create good public relations. Taxpayers are interested not only in military preparedness and efficiency but also in the way natural resources are managed on installations. User fees, where collected, supplement appropriated funds to provide habitat improvements, and this helps to relieve hunting or fishing pressures for all areas.

1-2.3. In Relation to the Law. Laws such as the National Environmental Policy Act of 1969 (1 January 1970, Pub. L. 91-190. 83 Stat. 852) and the Endangered Species Act of 1973 (28 December 1973, Pub. L. 93-205, 87 Stat. 884, and as amended 10 November 1978 by Pub. L. 95-632, 92 Stat. 3751) require Federal Agencies to consider the environmental impact of their programs and to insure the welfare of threatened and endangered species.

1-3. Safety Management and Administration. Safety considerations will be included in all aspects of fish and wildlife management to insure the safety of personnel participating in the program and of the visiting public. Safety guidelines are contained in App A-7.

1-4. Proponent and User Comments. The proponent agency of this manual is the Office of the Chief of Engineers, Department of the Army. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to HQDA (DAEN-MPO-B) WASH DC 20314.